

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	09/870,041	SUZUKI ET AL.	
	Examiner	Art Unit	
	Zandra V. Smith	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to amendment filed 28 May 2004.

2.  The allowed claim(s) is/are 1,3-8,11-18,20 and 21.

3.  The drawings filed on 30 May 2001 are accepted by the Examiner.

4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All      b)  Some\*    c)  None    of the:

1.  Certified copies of the priority documents have been received.

2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6.  CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a)  including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached  
1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.

(b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of  
Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

- |                                                                                                                      |                                                                                        |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)                                                     | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                 | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____. | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material           | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|                                                                                                                      | 9. <input type="checkbox"/> Other _____.                                               |

Zandra V. Smith  
Primary Examiner  
Art Unit: 2877

**DETAILED ACTION*****Allowable Subject Matter***

Claims 1, 3-8, 11-18, and 20-21 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record, taken alone or in combination, fails to disclose or render obvious, a detector apparatus that includes pair of wave-shaping circuits provided with an offset setting unit that provides an offset to the voltages obtained by smoothing the voltage signals, and generates said binary signals using threshold voltages obtained by using said offset, in combination with the rest of the limitations of claim 1.

As shown in claims 6 and 13, the prior art of record, taken alone or in combination, fails to disclose or render obvious and method and apparatus for detecting movement of a movable member that includes rotating a spherical rotatable member, roataing an encoder disk about an X-axis in response to rotation of the spherical rotatable member, rotating an encoder disk which rotates about a Y axis perpendicular to the X axis; detecting movement in an X-Y coordinate system corresponding to a direction of rotation of said spherical rotatable member, in combination with the rest of the limitations of the claims.

As to claim 20, the prior art of record, taken alone or in combination, fails to disclose or render obvious a detecting apparatus that includes, a spherical rotatable member, an encoder disk which rotates about an X axis in response to rotation of said spherical rotatable member, and an encoder disk which rotates about axis perpendicular to said X axis, said pair of photoelectric elements individually provided for each of the encoder disks, wherein movement in an coordinate system, corresponding to a direction of rotation of said spherical rotatable member,

being detected based on said voltage signals of the phases A and B from the pair of photoelectric elements corresponding to one of the encoder disks, in combination with the rest of the limitations of the claim.

Regarding claim 21, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method for detecting movement of a movable member that includes arithmetically altering the smoothed voltage signals by adding the offset to or subtracting the offset from the smoothed voltage signals, in combination with the rest of the limitations of the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

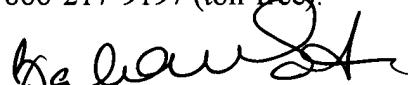
#### **Fax/Telephone Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (571) 272-2429. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Sandra V. Smith  
Primary Examiner  
Art Unit 2877

June 23, 2004